Unofficial Submission - Draft of Request for Interview
(Eighth Page of Sixteen Pages)

EXHIBIT B (FIRST PAGE OF THREE PAGES)

14

Ferrites

14.1 INTRODUCTION

The low frequency magnetic properties of spinel cubic ferrites or garnets are considerably inferior to those of the magnetic metals or alloys. Their permeabilities are lower, by one or two orders of magnitude, than those of pure iron or Permalloy; their coercivities are usually about ten times higher. Apart from the limited effect of the lower saturation magnetization (typically about one third of that of the common alloys) this reflects the difficulty of preparing ferrites in a condition as chemically homogeneous or structurally perfect as the metals. In iron for example, chemical inhomogeneity arises only in the form of inclusions which can be largely removed by standard purification techniques, but no comparable techniques can be applied to correct gross defects in ferrites. Moreover porosity, which is of considerable importance in ferrites, is a completely insignificant factor in nearly all metallic specimens, with the possible exception of some of the products of powder metallurgy. Such considerations help to explain why, although ferrites have been used and studied for more than two decades, their properties are currently being considerably improved by the careful study of structural features, while the major improvements in the properties of metals date back to the 1930's.

NOTE →

← NOTE

The principal property which compensates for the above shortcomings, making the use of oxidic compounds virtually obligatory at the highest frequencies, is, of course, their high electrical resistivity. It should thus be emphasized that considerable differences in resistivity occur between the different ferrites. Magnetite, or ferrous ferrite, has a room temperature resistivity of about 10^{-2} ohm cm, which is 1000 times greater than that of pure iron (while the alloys of iron with the highest resistivity only represent an improvement by an order of magnitude). However there is an even greater difference between the resistivity of magnetite and that of several single ferrites (or garnets) with values of 10^{7} ohm cm or more.* The resistivity of mixed ferrous ferrites is intermediate, precluding their use at radio frequen-

---

* See Table 14.7, page 601.

Unofficial Submission - Draft of Request for Interview
(Ninth Page of Sixteen Pages)

EXHIBIT B (SECOND PAGE OF THREE PAGES)

Magnetic Materials

R. S. Tebble
Professor of Physics,
University of Salford

D. J. Craik
Lecturer in Chemistry,
University of Nottingham

WILEY-INTERSCIENCE

a division of John Wiley & Sons Ltd
London New York Sydney Toronto

Unofficial Submission - Draft of Request for Interview
(Tenth Page of Sixteen Pages)

EXHIBIT B (THIRD PAGE OF THREE PAGES)

Copyright © 1969 John Wiley & Sons Ltd. All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical photocopying, recording or otherwise, without the prior written permission of the Copyright owner.

Library of Congress catalog card number 71-80119
SBN 471 84985 5

Printed in Great Britain by J. W. Arrowsmith Ltd., Bristol 3